CLAIMS

Claims 1-15 (cancelled)

Claim 16. (previously amended) A method for increasing a selectivity of a photoresist, comprising:

providing a substrate with a developed silicon-containing photoresist layer disposed over a non-silicon containing photoresist layer, the developed silicon-containing photoresist layer including polymer chains containing silicon;

exposing the substrate and the developed photoresist layer to an ultraviolet (UV) light, the UV light emanating from a UV generating agent;

converting a top portion of the developed silicon-containing photoresist layer to a hardened layer, the hardened layer being created by cross-linking the polymer chains containing silicon, the cross-linking being activated by the UV light; and

performing an etch using the hardened layer.

Claim 17. (previously amended) The method as recited in claim 16, wherein the polymer chains are cross-linked through one of silicon-hydrogen bonds and silicon-CH_3 bonds.

Claim 18. (previously amended) The method as recited in claim 16, wherein the method operation of providing a substrate with a developed silicon-containing

photoresist layer disposed over a non-silicon containing photoresist layer further includes,

placing the substrate in an etch chamber.

Claim 19. (original) The method as recited in claim 18, wherein the exposing the substrate further includes,

controlling the flow rate of an inert gas to the chamber between about 1000 sccm and about 3000 sccm.

Claim 20. (original) The method as recited in claim 19, wherein the inert gas is argon.

Claim 21. (original) The method as recited in claim 20, wherein the UV generating agent is neon.

Claim 22. (original) The method as recited in claim 21, wherein the flow rate of the neon is between about 0.2% and about 0.8% of the flow rate of the argon.

Claim 23. (previously amended) The method as recited in claim 21, wherein the method operation of exposing the substrate further includes,

striking a plasma composed of argon gas and neon gas.

Claim 24. (previously amended) The method as recited in claim 16, wherein the top portion of the developed silicon containing photoresist layer converted to the hardened layer is between about 5% and about 75% of the developed silicon containing photoresist layer.

Claims 25-36 (cancelled)

Claim 37. (new) In an etch chamber, a method for increasing a selectivity of a top photoresist disposed over a bottom photoresist, comprising:

applying a first non-silicon containing photoresist layer over a substrate;

applying a second silicon-containing photoresist layer over the first photoresist layer;

exposing a portion of the second photoresist layer to ultraviolet light generated through one of a mercury arc lamp and excimer laser;

removing the exposed portion of the second photoresist layer to define a developed second photoresist layer, resulting in a portion of the first non-silicon containing photoresist layer being exposed;

striking a plasma in the etch chamber;

generating ultraviolet (UV) light from the plasma, thereby exposing the developed second photoresist layer and the exposed first non-silicon containing photoresist layer to plasma generated UV light;

converting a top portion of the developed silicon-containing photoresist layer to a hardened layer, the hardened layer being created by cross-linking the polymer chains

containing silicon, the cross-linking being activated by the plasma generated UV light; and

performing an etch operation.

Claim 38. (new) The method of claim 37, wherein the method operation of generating ultraviolet (UV) light from the plasma, thereby exposing the developed second photoresist layer and the exposed first non-silicon containing photoresist layer to plasma generated UV light includes,

controlling a chamber temperature at about 0 degrees Celsius.

Claim 39. (new) The method of claim 37, wherein the method operation of striking a plasma in the etch chamber includes,

introducing an inert gas and a UV generating gas selected from the group consisting of neon, xenon, helium, hydrogen, and krypton.